

**THE DETERMINANTS FOR PURCHASE INTENTION OF HYBRID CARS
IN PENANG, MALAYSIA**

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ABSTRAK

Kajian ini mengkaji pembelian kereta hybrid di Pulau Pinang, Malaysia dengan memahami faktor-faktor yang mempengaruhi niat pembelian pengguna. Kereta hybrid merujuk kepada kenderaan yang mengguna dua atau lebih sumber kuasa yang berbeza untuk bergerak. Kereta hybrid juga dikenali sebagai kenderaan hybrid- elektrik (HEV) yang menggunakan enjin pembakaran dalaman dengan motor elektrik. Kepentingan untuk memakai kereta hybrid telah mendapat perhatian daripada orang ramai kerana kepentingannya dalam pemuliharaan alam sekitar dan kecekapan pembakaran bahan api. Walau bagaimanapun, kajian yang berkaitan dengan persepsi orang ramai mengenai dasar kerajaan, pengetahuan persekitaran hidup, nilai dan risiko terhadap produk teknologi baru ini di Malaysia masih kurang diterokai. Pengetahuan teori dari Teori Tingkahlaku Dirancang (TPB) telah digunakan untuk menguji hipotesis atas model hubungan antara tanggapan nilai, tanggapan risiko, pengetahuan persekitaran hidup dan tanggapan dasar kerajaan terhadap niat pembelian kereta hybrid. Satu kajian selidik yang ditadbir sendiri telah dijalankan dan sebanyak 140 jawapan lengkap diperolehi daripada pengguna di Pulau Pinang, Malaysia. Hasil daripada analisis mendedahkan bahawa nilai tanggapan dan pengetahuan persekitaran hidup mempunyai hubungan positif yang signifikan dengan hasrat pembelian kereta hybrid manakala risiko dilihat mempunyai hubungan negatif yang signifikan dengan niat pembelian kereta hybrid. Implikasi kajian ini akan berfungsi sebagai input untuk implikasi komersial dan pemasaran dalam industri automobil di Malaysia serta membantu meningkatkan angka jualan kereta eko tempatan. Selain itu, ia dapat membantu untuk mengurangkan pelepasan gas rumah hijau (GHG) dari sektor pengangkutan tempatan. Tambahan pula, kajian ini memberi maklumat lanjutan yang boleh disesuaikan oleh

pembuat dasar dan pentadbir untuk membangunkan dasar automotif negara yang lebih baik dan strategic dalam pelan tindakan tempatan yang dihargai oleh orang ramai.

ABSTRACT

This study examines the purchasing of hybrid cars in Penang, Malaysia by understanding the factors which influence the consumers' purchase intention. Hybrid cars refers to a car which uses two or more distinct power sources to move. A hybrid car is also known as hybrid-electric vehicles (HEV) which is using an internal combustion engine with an electric motor. The importance of adopting a hybrid car has been gaining public attention due to its environmental conservation property as well as its fuel efficiency. However, studies which relates to the public perception on government policy, environmentalism as well as perceived value and perceived risk of this new technology product in Malaysia is less explored. Theoretical knowledge from the Theory of Planned Behaviour (TPB) was employed to test model that hypothesized the relationships between perceived value, perceived risk, environmentalism and perceived government policy towards the purchase intention of a hybrid car. A self-administered survey was carried out and a total of 140 completed responses were obtained from consumers in Penang, Malaysia. The result driven from analysis revealed that perceived value and environmentalism have significant positive relationships with the purchase intention of hybrid car whereas perceived risk has a significant negative relationship with the purchase intention of a hybrid car. The implication of this study will be able to serve as an input for commercial and marketable implications to the automobile industry in Malaysia and help to boost the sales figure of eco cars adopted locally. In addition, it able to help to to reduce greenhouse gases (GHG) emission from the local transportation sector. Furthermore, this study will provide insights which could further adapted by policy-makers to develop better national automotive policy that is strategic for local action plan and greatly valued by the public.

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter introduces the research outline of the study which consist the background of the study and the problem statement followed by research objectives and research question. The significance of study is addressed and the organization of remaining chapters is concluded.

The focus of the study is to examine the determinants that influence the purchase intention of hybrid cars in Penang, Malaysia. There are four independent variables namely perceived value, perceived risk, environmentalism and perceived government policy. The dependent variable will be the purchase intention of hybrid cars. The results found in this study may contribute to automobile marketing strategies formation as well as government automobile policy implementation.

1.1 Background of study

1.1.1 Overview on the hybrid cars acceptance in Malaysia

Looking at the Malaysian hybrid cars industry, the first Toyota Prius had been brought into the local market in August 2007. However, the sales of new hybrid cars compared to other ordinary types of new cars is founded to be unbelievably low in 2008 and 2009 respectively (Yang, 2011) despite more than a dozen of hybrid models from Toyota, Honda, Lexus, Mercedes-Benz, BMW and Ford are available in the market place.

Although it had been 6 years since the introduction of hybrid cars into the Malaysian market, sales figure remained to be below par. There is an extensive literature and researches about consumer behavior and decision making in relation to

car purchase, but when link to hybrid cars's purchase intention in Malaysia, it seemed that there is a lack of research information about this environmentally-friendly topic. Low sales of hybrid cars are keeping the cost of manufacturing high. Besides, the objective of reducing dependence on petrol as well as to reduce greenhouse gases emission from the vehicles could hardly be achieve if there are still barriers resisting consumers from switching to this new type of environmentally-friendly vehicles.

Table 1.0: *Total Percentage of Hybrid Vehicle Sales over the Total Vehicles Sales*

YEAR	2010	2011	2012	Till-July 2013
HYBRID				
VEHICLE SALES	322	8,403	15,355	8,571
TOTAL				
VEHICLES				
SALES	605,156	600,123	627,753	313,488
PERCENTAGE	0.053%	1.400%	2.446%	2.735%
Y-O-Y GROWTH		1.347%	1.046%	0.289%

(Source: Malaysian Automotive Association and the Star, 2013)

According to Table 1 above, hybrid vehicle contributed only a little compared to the total vehicles sales each year, ranging from only 0.053% in year 2010 up to 2.735% in July, 2013. Although there seems to be an increasing trend each year, however, the sales figure of hybrid cars seems to be flat. This scenario occurred mainly due to lack of new models being introduced into the market, according to analysts and industry observers. (Mahalingam, 2013)

The good bargain for hybrid cars purchase in Malaysia previously was mainly due to the excise duty exemption for model below 2,000cc which has already ended by year 2013 (Mahalingam, 2013). According to a RHB research analyst, hybrid vehicles sales was mainly bought for their relatively cheaper price (given the duty exemptions),

rather than for cost savings purpose (improved fuel consumption) as there is a subsidy scheme of fuel price in Malaysia. However, the analyst foresee that if the hybrid duty exemptions are removed, the prices of hybrid cars will rise significantly, causing the sales of such vehicles to decline sharply. (Mahalingam, 2013)

1.1.2 Hybrid cars in environmentalism perspective

Environmental issue has been the concern of the recent generation in many business contexts such as tourism, construction building and also the mode of transportation. Transportation was identified as the main source of air pollution with the carbon dioxide emissions. As air pollution is the global threat, thus, human need to comprehend ways to better conserve the environment to reduce it.

With accordance to the Ministry of Transport Malaysia, the ownership of cars population in Malaysia was projected to elevate to 18,798,821 in year 2020 as opposed to only 4,145,982 in year 2000. This indicates a three times increase of the total car volume. On the other hand, based on the report of Ministry of Natural Resources and Environment Malaysia, the CO₂ emission from the transportation was 21% of the total greenhouse gas (GHG) emissions in Malaysia and it elevated to 223 mil tonne for year 2000 from only 144.3 mil tonne in year 1994. This is a 55% increase in CO₂ emission solely contributed by transportation sector. Therefore, with the rapid growth of personal vehicle ownership, it is of no doubt that the carbon dioxide emission is one of the major topic being discussed among world leaders. In addition, the worldwide population increased will cause a higher energy demand and create a negative impact to overall environment and ecological system with pollution. Thus, environmental sustainability had become an important business practice (Babiak, 2011).

Hybrid car was introduced as a new generation automobile due to its high fuel efficiency & able to reduce the dependency on fossil fuels. The hydrogen fuel cell

vehicles utilize the electricity from the chemical reaction of hydrogen and oxygen, releasing water as a by-product throughout the reaction chain instead of other toxic substances like nitrogen oxides and carbon monoxides. Thus, the adoption of hybrid vehicles was acknowledged as a green technology development that are able to conserve energy, effectively reduce harmful emissions which causes greenhouse effect and upgrade the quality of life and environment. However, commercializing the hybrid cars has never been easy. Since the first mass-produced hybrid car launched about six years ago in Malaysia, the sales figure of hybrid vehicles remained low compared to the sales of the conventional cars. (Nadaraj, 2014)

The Malaysian government had initiated various effort in introducing hybrid vehicle from production to the final consumer adoption. This is because hybrid vehicles are not only an eco-friendly mode of transportation, but also crucial in abiding the Kyoto Protocol.

The Kyoto Protocol to the UNFCCC was signed in year 1992, assigning fixed emission limitations for the reduction of greenhouse gas emissions and climate control to the signatory nations. The objective of the protocol is to control the greenhouse gas concentrations in the air within some tolerance level so that dangerous anthropogenic interference could be prevented in the ecosystem. Malaysia has sanctioned the Kyoto Protocol and is a party to the UNFCCC.

As a developing country, Malaysia has yet to have quantitative commitments under the Kyoto Protocol. However, in order to synergize with others, Malaysia has started to commit under the UNFCCC to implement and formulate regional programmes pertaining to climate change mitigation. Some anthropogenic emissions by greenhouse gases sources were addressed and removed.

1.1.3 Malaysia government policy and effort in promoting hybrid vehicle

The recent hybrid vehicle tax exemption introduced by the Malaysia government in the National Automotive Policy (NAP) since year 2010 will be examined if it has a prominent influence towards the purchase intention of hybrid vehicle. This policy rewards the purchase of environmentally friendly cars with import duty and exercise duty exemption. In addition, it aims to increase the public awareness on environmental conservation. (Tan, 2011).

Hybrid cars were exempted from import duties and get a 50% exemption from excise duties. Thus, with the discontinuation of the tax exemption, the hybrid vehicles will now have an effective tax rate of 272%. This will significantly elevate the price and will rigorously change the hybrid landscape in Malaysia. (Tee and Mahalingam, 2014)

1.2 Problem Statement

There are past researches investigated regarding purchase intention towards hybrid vehicles in Europe, United States and Asia region, such as Canada (Cheung & Prendergast, 2006; Wang, Zhang, Zang, & Ouyang, 2005; Chandra et.al., 2010), Ireland (Caufield et.al., 2010; Browne et.al., 2012), China (Zhang et.al., 2013), Korea (Kang and Park, 2011), Norway (Nayum et.al., 2013), Austria (Gass et.al., 2014) and Thailand (Sinrungratam, 2013).

According to the research from Sinrungratam (2013), one of the main research gaps that could be used for future study in purchase intention towards eco cars are examining the direct or indirect relationship between perception of product reliability, perceived risk, perceived value and purchase decision-making. Hence, this study aims to investigate in Malaysia context as well as what are the major factors that influence Malaysia consumers to purchase a hybrid car.

In Malaysia, there are only few studies conducted to understand the reasons or factors that drives consumers to purchase hybrid vehicles. One of the studies primarily focus on country of origin which affects the purchase intention of motorcycles in Malaysia. On the other hand, there is another study conducted by Yee and San (2011) which studied consumers' perceived quality, perceived value and perceived risk towards the purchase intention on automobile. The study done by Yusof et.al. (2013) was investigating the consumer's environment responsibility feeling, environmental values and environmental knowledge that influence the perception of environmental advertisement and perception of environmental product that influence the purchase intention.

So far, there is relatively minimal studies conducted which incorporated perceived government policy, perceived value, perceived risk and environmentalism concept in examining the purchase intention of eco-friendly cars in Malaysia. Thus, this study target to include the effect on purchase intention for hybrid cars after the announcement made by government that the full import tax and excise duty exemption for hybrid cars ended on December 31, 2013. This is to examine if the abolishment of the import tax and excise duty exemption will further impact the hybrid vehicles purchase intention in Malaysia.

In addition, as hybrid vehicles will contribute to the environmental conservation concept by reducing harmful greenhouse gases, this factor will be illustrated in this study with the combination of perceived risk, perceived value and perceived government policy. This study hence target to provide a greater picture or an overview of the determinants that truly influence the purchase intention of hybrid vehicles. As such, this study will also able to explore the reason of why the sales figure of hybrid

vehicles in Malaysia is still below par as compared to conventional vehicle (Aqilah, 2013).

Due to low hybrid vehicles owners in Malaysia, post-purchase analyses is found to be difficult and hence, pre-purchase expectations analyses could help to understand whether there is any risk being perceived by the consumers that causing them not to opt for the hybrid vehicles when come to vehicle purchase decisions. By analyzing the consumers' expectations and their perceived risks on the hybrid vehicles, it is believed that to be able to determine the gap between consumers' expectations and marketing effort. Therefore, proper marketing strategy to promote the sales of hybrid-electric vehicles could be proposed.(Yee and San, 2011)

1.3 Research Objective

This study is conducted to investigate the factors influencing consumer's purchase intention for hybrid vehicles. Therefore, this study attempts to accomplish one main objective as follows:

- To identify the major determinants (perceived risk, perceived value, environmentalism and perceived government policy) influencing consumer purchase intention towards hybrid cars.

1.4 Research Questions

To achieve the above objectives, the study attempts to answer the following value research questions:

- Do perceived value affects the purchase intention of hybrid cars?
- Do perceived risk affects the purchase intention of hybrid cars?
- Do environmentalism affects the purchase intention of hybrid cars?

- Do perceived government policy affects the purchase intention of hybrid cars?

1.5 Definition of Key Terms

1.5.1 Perceived value

According to Chen and Chang (2012), perceived value is defined as a consumer's general assessment of the benefit of a product or service based on a consumer's appraisal. It can also be seen as an attribute with relevance to the product's value perception which helps to build positive word-of-mouth effect and stimulate purchase intention.

1.5.2 Perceived risk

Based on Chen & Chang (2012), perceived risk is a subjective expectation of a loss with possible consequences of an incorrect decision. It can also be determined as the combination of negative consequence and uncertainty that will affect a consumer's purchase intention.

1.5.3 Environmentalism

According to Kaiser et al. (1999), the environmental values is an approximation of subjective norms to predict ecological behavior. Environmental values has a high correlation with a person's values and commitment to pro-environmental behavior influencing the purchase intention for environment-friendly automobiles (Henning & Karlsson, 2011).

1.5.4 Perceived government policy

The perception towards government policy or government regulators was defined as how consumers perceive the government in protecting consumer's right through a well-defined and consistent policy in the acceptance of new technology

products as these products were perceived as having higher potential risk which consumers have concern over and government is believed to hold responsibility (Frewer et al., 2003). In this study context, the new technology product is referring to hybrid cars.

1.5.5 Purchase Intention

Consumers' intention to purchase is the state where consumer has the state to perform the act of purchasing (Ajzen, 1991). In this study, it is referring to the consumers' intention to purchase hybrid vehicle.

1.6 Significance of the Study

This study brings two aspects of incentive to the hybrid vehicle industry in regard to its theoretical contribution and suggested practical methodologies to outlive in competition. Theoretically, by understanding factors that affect the consumer's purchase intention towards hybrid cars inclusive of perceived value, perceived risk, environmentalism and perceived government policy, factors which significantly impact the consumer purchase intention of hybrid vehicles could be identified.

In addition, although Theory of Planned Behaviour (TPB) had been widely adopted in various industries and psychology field to study the consumers' purchase intention. However, it is relatively less being applied in the hybrid cars industry in exploring the perceived value, perceived risk, environmentalism and perceived government policy influencing the purchase intention of hybrid cars.

On the other hand, the practical contribution of this study suggest the manner of best approach for Penang hybrid vehicle industry to work out appropriate and effective strategies in establishing customer-oriented marketing activities, to achieve brand extension, loyalty and eventually competitive advantage. The automakers can

thus come out with relevant strategies and marketing programs to boost the sales of hybrid vehicles.

In addition, government could utilize and incorporate these information into the next upcoming National Automotive Policy to cater for the concern of potential hybrid vehicles purchasers and to stimulate the economic growth. In the effort of promoting hybrid vehicle in Malaysia, the government announced a major policy modification with introduction of numerous reforms and regulations that support the manufacture and local use of hybrid vehicles. Malaysian government has been promoting the formation of a local hybrid vehicle manufacturing since year 2011. According to the Malaysia Automotive Institute (MAI), the reformation of the industry is projected to triple the economic return by year 2020 due to a higher international and local demand. In addition, the gross domestic product (GDP) was anticipated to rise from the present rate of 2.4% to 6.8%, largely due to an increased focus on the production of hybrid or other energy-efficient vehicles. This growth would help to generate more foreign direct investment and government efforts to encourage original equipment manufacturing set up in Malaysia.

This study will thus have important practical marketing implications for the sales of hybrid vehicle and industry promoting and developing hybrid vehicle as it acts as a reference on understanding the most significant factors influencing consumers' purchase intention towards hybrid vehicle. Furthermore, it also provide an insight to the government whether the current National Automotive Policy regarding hybrid vehicle is valued by the consumers. Thus, valuable input could be incorporated in the upcoming NAP to cater for the concern of consumers towards hybrid vehicle.

Furthermore, this study will also support sustainability environmental development practices as the adoption of hybrid vehicles imply a reduction of harmful

greenhouse gas emission from transportation which aligned with the underlying guidelines of Kyoto Protocol.

1.7 Organization of Remaining Chapters

The consecutive chapters of this study comprises Chapter 2 to Chapter 5.

Chapter 2 reviews on the literature regarding the independent variables, dependent variable, theoretical framework and also hypotheses development.

Chapter 3 defines the study design, the variables, the sampling and population method, the measurement and data analysis by using Statistical Package for the Social Sciences (SPSS) and Partial Least Squares (PLS) – Structural Equation Modeling (SEM).

Chapter 4 reports the profile of respondents, descriptive of analysis and the hypothesis test results related to the variables.

Discussion on the interpretation of the test results, the implications and limitations with recommendations for future research related to this study is concluded in the final chapter.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature of previous studies related to the topic of hybrid vehicles as well as the determinants of purchase intention, the theoretical framework and the variables of the study. There are four independent variables: perceived value, perceived risk, environmentalism and perceived government policy. The dependent variable will be the purchase intention. Four hypotheses are formulated and tested in this study.

2.1 Adoption of Hybrid Vehicles

The adoption of hybrid vehicles can be basically divided into several categories. Firstly, financial and policy-related benefits. Consumers are driven by the interest in saving money on the petrol from the fuel-efficiency to reduce overall expenditure. Some people will even replace a larger car with a smaller, cheaper hybrid car. (Klein, 2007) Usually, with the increase in fuel price and some relevant government incentives, consumers will opt for a hybrid vehicle due to the financial benefits that they are able to gauge. In addition, it is also a way of securing energy consumption in the nation. (Gallagher and Muehlegger, 2011)

Secondly, some consumers are driven by the motive or awareness and knowledge of environmentalism, and thus, they would want to conserve the earth by reducing ecological footprint. (Heffner et al., 2007) Consumers with environmentalism will express their concern towards the environment through actual commitment. For instance, consumers would like to the image of “green” through driving a hybrid car

(Klein, 2007). Some people would prefer a well-known hybrid vehicle over another, like Toyota Prius rather than Honda Insight (Gallagher and Muehlegger, 2011).

On the other hand, there are consumers who focus more on the conformation with the society norms. Green consumers would like to form a community. Thus, embracing hybrid vehicle can be seen as a reflection of sharing the community's value. (Kahn, 2007) Fourthly, some consumers are truly concern about reducing petrol consumption in order to reduce personal expenses (Heffner et al., 2007). Lastly, there are also consumers who are techno- savvy and interested in technological innovation and thus attracted to adopt a hybrid vehicle (Heffner et al., 2007).

In short, all the above mentioned factors are able to influence the intention of owning a hybrid vehicle. Thus, the hybrid vehicle adoption is more than just financial reward model as claimed in Klein (2007).

2.2 Purchase Intention of Hybrid Vehicle

Consumer's purchase intention are easily influenced by word-of-mouth, regardless of whether it is positive or negative feedback (Kenyon and Sen, 2012). Prior to making a purchase decision, a customer will go through a search process for the product (Horn and Salvendy, 2006). Throughout the process, the price of the product, the aesthetics of the product, the features and performance of the product, the durability and also the country of origin of the products all count.

In the competitive world of business, a good comprehension of consumer purchase behavior is one of the key elements for business success. However, the fact that different kinds of human's characters and attitudes will influence their purchase behavior (Fisher, 1987; Komarovsky, 1961) are making the studies of consumer behavior become so complex although numerous literature are available for different aspects of consumer behavior studies. The availability of countless alternatives in the

marketplace for a similar product category is making the purchasing activity a multiple stages of decision-making processes (Oppewal et al., 2004; Urban, Hauser, & Roberts, 1990, 1993)

Generally, the purchasing processes starts from the identification of gap between current (existing) condition with the ideal (intended) condition which causing consumers to recognize the existence of a problem to be solved or a “need” to achieve his/her goal (Kolesar & Galbraith, 2000). The process then moved on to the stages of search and evaluation of available alternatives. The reason of consumers are motivated into the search and evaluation of alternatives is due to the uncomfortable feeling of a potential bad purchase. Therefore, information search and evaluation of available alternatives is engaged to help reducing potential risk associated with the purchase before making the right decision to purchase products or services which is believed by the consumers to be the best option for them (Kolesar & Galbraith, 2000).

However, Newman & Staelin (1972) argued that most consumers do not extend this search beyond a few relevant alternatives even when buying expensive consumer durables due to the cost associated with the search. Moreover, some consumers are also said to be bypassing both search and evaluation processes simply by relying on the remembered past experience towards a product or brand (Kolesar & Galbraith, 2000) due to the perceived risk associated with the purchase or the consequences of failure are minimal relative to the cost of a renewed search (Hauser, Urban, & Weinberg, 1993). During the stage of search and evaluation, comparisons between the alternatives are being made according to a set of attributes or own’s expectations. Expert’s advice may be referred but some may just rely on their feelings of the alternatives (Kolesar & Galbraith, 2000). The outcome of the evaluation will bring consumers into the purchase decision stage where the intention to purchase the best evaluated product is formed.

Purchasing the intended product will then lead to the consumption stage as well as post-purchase evaluation where promise of the product and pre-purchase expectations are being compared with its actual performance (Kolesar & Galbraith, 2000).

In the green marketing context, the purchase intention of environmentally friendly product is defined as the likelihood and readiness of consumers to buy a product which has the green features.(Rashid, 2009) On the other hand, the purchase intention of green products can be seen as a consumer behaviour which consumers express their environmental concern to the ecosystem. (Yusof et al., 2013)

Therefore, from the literature of purchase intention, it brings to the need to understand both perceived risk and consumer expectations where the former brings along feeling of discomfort and anxiety due to loss perception or bad purchase while the latter forms a pre-purchase standard of what is believed could be delivered by the products or services under evaluation.

In this study, the four possible factors proposed that may affect consumer's decision to purchase a hybrid car are perceived value, perceived risk, environmentalism and perceived government policy.

2.3 Perceived Value

According to Kang and Park (2011), a perception creates a positive or negative setting towards a product or service. It is an attitude affected by the society and values constitute to the attitude that a person retain towards various component of the society, such as education, politics which is also based on the perception of the world.

Perceived value is defined as a consumer's general assessment of the benefit of a product or service based on a consumer's appraisal. It can also be seen as an attribute with relevance to the product's value perception which helps to build positive word-of-mouth effect and stimulate purchase intention. Perceived value acts as a signal that

trigger purchase intention when a consumer judgment is based on inadequate information. Previous research has shown that it has a positive effect on marketing performance, thus, it is important for companies to impress consumer through product value (Chen & Chang, 2012)

Perceived value has a significant effect on sales performance and an important attribute that affect purchase intention. A product can offer value to customers through differentiation strategy or outperforming strategy (Zhuang et al.,2010). The definition could be further refined in green marketing context as “a customer’s overall appraisal of the net benefit of a product or service between what is received and what is given based on the consumer’s environmental desires, sustainable expectations, and green needs”. Perceived value may induce a customer to have the purchase intention when there is no complete information available for judgment prior a purchase. (Chen and Chang, 2012)

2.4 Perceivd Risk

Perceived risk is a subjective expectation of a loss with possible consequences of an incorrect decision. It can also be determined as the combination of negative consequence and uncertainty that will affect a consumer’s purchase intention. Thus, it will negatively and significantly influence the customer’s purchase decision and behavior (Chen & Chang, 2012).

The reason behind is mainly because the new product or new technology might require its adopter to not only adopt the new product (or technology) but also to adopt new behaviors and/or discontinue past behaviors (Castano et al., 2008). This creates uncertainties (Steve, 2003) and consumers are concern about the benefit-related uncertainties (performance and symbolic uncertainties) as well as the cost-related uncertainties (switching-cost and affective uncertainties) which will affect the decision

whether or not to adopt this newly introduced product or technology (Castano et al., 2008). Adoption of new product or technology is inherently risky and many consumers are risk averse (Bauer, 1960; Bettman, 1973, 1975; Ross, 1975; Tarpey & Peter, 1975) and this is always an impediment to successful new product introductions (Bearden & Shimp, 1982). Therefore, understanding the concept of consumers' risk perception associated with the new products and effective handling it would be able to help facilitate new product and/or technology adoption (Bearden & Shimp, 1982).

Perceived risk was originally introduced to the marketing literature by Bauer (1960) as a two-dimensional structure consisting of uncertainty and adverse consequences. It is a concept of partial ignorance where Dowling (1986) suggests that neither of the consequences of alternatives nor their probabilities of occurrence will be accurately known. Besides, Cunningham (1967) in his conceptualization suggested that there is a little difference between "whether the consumer knows that there is an 80 percent chance that he will make a bad purchase or whether the consumer thinks that he just "might" make a bad purchase." In addition, he argues intuitively that known probabilities are extremely rare in purchase behavior. Most of the time, consumers will be facing with a completely new purchase which they have never encountered before and therefore accurate assessment of risk is almost impossible (Mitchell, 1999). Even if the consumer could calculate the risk involved accurately, it is not the objective risk which motivates behavior, but the consumer's subjective impressions of it (perceived risk) (Mitchell, 1999).

Therefore, it can be concluded that perceived risk will create feeling of uncertainty, discomfort and/or anxiety (Dowling & Staelin, 1994) because there is an expectation of loss perceived by the consumers (Stone & Gronhaug, 1993; Sweeney, Soutar, & Johnson, 1999). As consumers are concern about the benefit-related

uncertainties (performance and symbolic uncertainties) as well as the cost-related uncertainties (switching-cost and affective uncertainties) (Castano et al., 2008), they tend to engage in some sort of risk-reducing activities including collecting new information about the brand/product being considered (Dowling & Staelin, 1994) or buying their favorite brand with confidence (Mitchell, 1999) until the overall perceived risk level is within their acceptable risk level (Dowling & Staelin, 1994). Besides, some other product's extrinsic cue such as the warranty quality is also found to be able to reduce consumers' risk perception and hence, stimulate product evaluation, purchase and adoption (Bearden & Shimp, 1982).

This definition is perfectly aligned with the literature of purchasing process where information search is the second process right after the need or problem is recognized by the consumer before a purchase intention is formed (Kolesar & Galbraith, 2000). This process is said to be bypassable as long as the consumers are feeling comfortable by relying on the remembered past experience where the perceived risk associated with the purchase or the consequences of failure are small enough (Hauser et al., 1993) or within their acceptable region (Dowling & Staelin, 1994). Hence, purchase intention is directly formed without going through the process of information search due to the perceived risk is small.

Therefore, it can be concluded that perceived risk may influence purchase intention and people who perceive lower risk may have greater intention to purchase (Ji-Hye, 2002).

2.5 Environmentalism

Environmentalism is found to be an important underlying factor that determine a consumer's decision. According to Kaiser et al. (1999), the environmental values is an approximation of subjective norms to predict ecological behavior. The results found

was environmental values has a high correlation between a person's values and commitment to pro-environmental behavior. In the context of green marketing, consumers' environmental values have significant influence on purchase intention for environment-friendly automobiles. (Henning & Karlsson, 2011). In addition, according to Heffner et al. (2007), environmental factors are important in determining the purchase intention as consumers with high environmental awareness are more willing to adopt a hybrid vehicle because it is a way in helping to conserve the environment (O'Garra et al. 2007). Some consumers would like to show their commitment to protect the environment through reducing ecological footprint (Erdem et al., 2010).

Consumers with high environmental consciousness are more willing to opt for an alternative fuel transportation as they will perceive the act as a way to conserve the earth (O'Garra et al., 2007). The environmental factors that gain most apprehension will be a lower emission rate and less natural resource consumption (Turrentine & Kurani, 2007).

2.6 Perceived Government Policy

There are various previous study on the relationship between hybrid vehicle adoption and government policy (Gallagher & Muehlegger, 2011). According to Sallee (2011), consumers took advantage of most tax incentives offered to Toyota Prius purchasers to coincide with the federal incentives. Tax incentive was found to be an effective method to boost hybrid vehicle sales for a Canadian province (Chandra et al., 2010). The study conducted by Beresteanu and Li (2011) found that government incentive had a significant impact on hybrid vehicle sales.

The perception towards government policy is another significant determinant in the acceptance of new technology products. For example, gene technology was perceived as having higher potential risk which consumers have concern over (Frewer

et al., 2003). The trust in government regulators is an important attribute on the acceptance of hybrid vehicle as government is believed to hold responsibility in protecting consumer's right through a well-defined and consistent policy.

Malaysia's company strategy and consumer behavior will need to be bound to the government's policy and regulations. Thus, the local government use a number of incentives to encourage personal adoption of hybrid cars. For instance, the tax exemption on import and excise duty for the Complete Knock-Down (CKD) hybrid cars is one of the government policy which aim to boost the sales of the eco-friendly personal vehicle model. It was seen as an effort by government to conserve the environment. However, the excise and import duty on Complete Build-Up (CBU) hybrid cars had come to an end in year 2013, leaving only CKD hybrid cars with tax exemption. Thus, this is an important determinant if government should continue the tax exemption policy for CBU cars if it is highly valued by consumers.

2.7 Theory of Planned Behavior (TPB)

Many of the environmental research which explain green products adoption behaviours are primarily based on normative and cognitive behaviour. Normative models like Schwartz's (1977) Norm Activation Theory abandons the idea of behavioural intentions mediating the relationship between personal norm and pro-social behaviour. Thus, it suggests that personal norms such as moral obligation can lead to pro-social behaviour.

On the other hand, the well-known cognitive behavioural theories like Ajzen's (1991) Theory of Planned Behaviour (TPB) and Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA) proposes that the intention was dogged by the consumer's belief which further form attitudes, behaviour and lastly adoption. In TRA, consequential beliefs is determined by the views on the consequences of performing a

certain behaviour. In addition, subjective norm was defined as perceived expectations of other significant person or a specific reference group, for instance family or peers and they get motivation from the reference group to comply with these expectations (normative belief). Altogether, they form behavioural intentions. TPB further extends TRA by incorporating control beliefs which is constraint in life and that intentions may not necessarily transformed into behaviour.

This research framework will be formulated based on Theory of Planned Behaviour (TPB). According to the TPB by Ajzen(1991) and Fishbein and Ajzen (2011), the behaviour intention are generated from attitudes toward the behaviour, subjective norms and perceived behavioural control. This theory mentioned that a person's core belief will be the dominant factor to influence his or her intention and those belief are generally normative, behavioural or control beliefs. In addition, people perform an action through intention, influenced by the belief, peer pressure to conform to the society norm and the individual's perceived behavioural control. Thus, intention can be seen as the predictor of behaviour. In short, stronger intention induces a higher likelihood of performing a behaviour. (Conner & Armitage, 1998)

Attitude towards the behaviour is determined by the perceived consequences linked to the behaviour. To put it short, it suggested that people are dominated by the individual favouritism towards performing a behaviour, and that will make a person most likely to perform that behaviour. Salient referents are groups or individual that a person believe will support or condemn him/ her to perform certain behaviour.(Ajzen, 1991). As for subjective norm based on Ajzen (2002), a person would more likely to carry out a behaviour when it is a norm in the society that approve the behaviour and vice versa. Perceived behavioural control is the perceived ease or difficulty in performing a behaviour. A person with greater perceived behavioural control is more

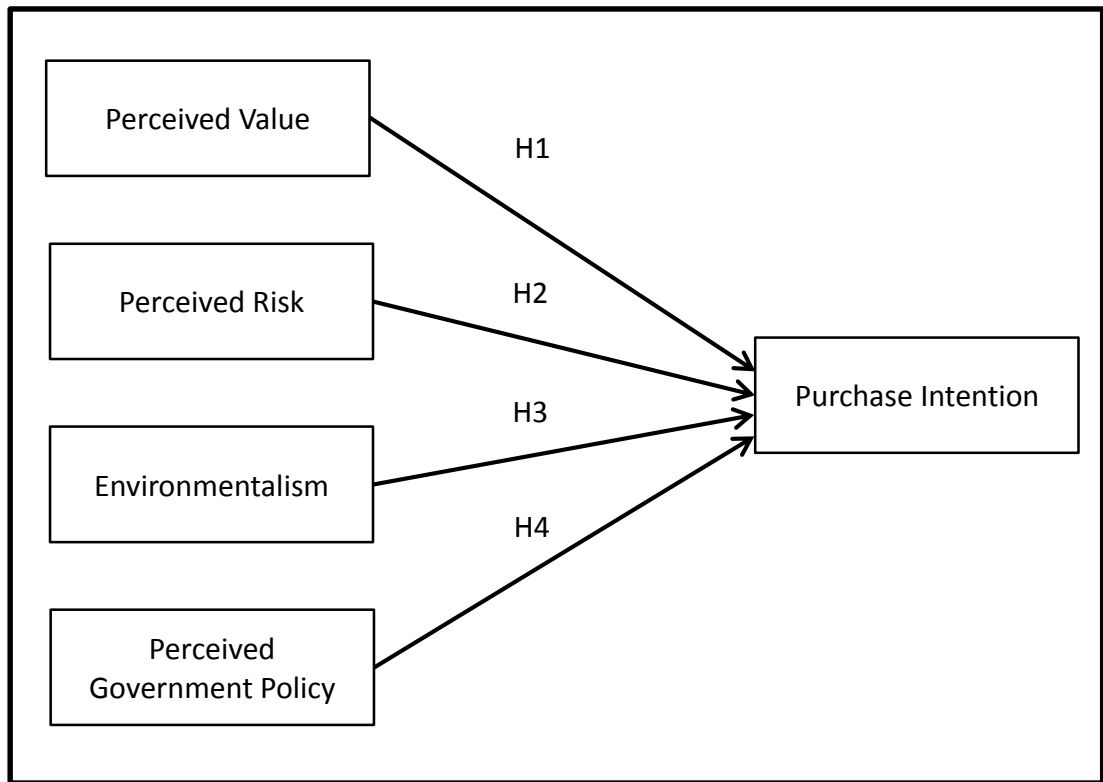
likely to have an intention to perform the behaviour (Ajzen, 1991). All these three determinants of behavioural intentions have significant influence on a person's intention to perform a behaviour (Ajzen, 1991). Nevertheless, this does not imply that a person will actually perform a behaviour based on the intention persist (Ajzen, 2001).

Theory of Planned Behaviour has been utilized to address various issues in social science and have also been applied to hybrid vehicle adoption researches. In the case of purchase intention of alternative fuel vehicles, there are previous empirical researches done to understand the “actual” hybrid vehicle's purchase intention (Peters et al. 2008).

2.8 Theoretical Framework

Theory of Planned Behavior by Ajzen (1991) has been utilized to address issues in social psychology and also in understanding the consumer's purchase intention. In this study, attitudes can be generated by beliefs which focusing on perceived value and perceived government policy. Subjective norm was basically addressed through environmentalism or environmental awareness. Perceived behavioral control will be discussed under the perceived risk. The factors influencing consumer's purchase intention for hybrid vehicle will be the direct motivators for consumers' purchase intention in hybrid cars. The theoretical framework of this study will be illustrated in the schematic diagram shown in Figure 2.0.

Figure 2.0: Theoretical Framework



2.9 Hypotheses Development

The hypotheses development in this study is based on the theory of planned behaviour framework. Based on the theoretical framework shown above, four hypotheses will be tested in the study.

2.9.1 Perceived Value

Perceived value is a subtle indication that positively influence purchase intention when there is only partial information available for consumers to make a judgement (Kardes et.al. 2004). Perceived value is a set of attributes which are related to the perception of a product's value, thus, it helps to build a word-of-mouth effect and increase purchase intention (Ashton et al., 2010). However, some customers are

opposed to purchase the products due to some companies endorse their products through deceptive claims about the environmental value of their products.

Perceived value was identified as one of the significant factors that will affect purchase intention (Chen and Chang, 2012). Thus, past literatures shown that perceived value has a positive significant relationship to purchase intention. (Eggert and Ulaga, 2002; Tam, 2004). In the green context which emphasize the environmentalism concept, green perceived value is vital in determining the green purchase intention, which ties to the context of this study as hybrid cars are a kind of green product, so the second hypothesis formed as below:

Hypothesis 1: There is a positive and significant relationship between customers' perceived value and purchase intention of hybrid cars.

2.9.2 Perceived Risk

According to Chen & Chang (2012), perceived risk was negatively affecting customers' purchase intention. It indicates that when customers have higher perceived risk towards the hybrid vehicle, there is less likelihood that the customer will form an intention to adopt it. Perceived risk is a subjective assessment by consumers which linked to possible negative outcome and wrong decision made (Chen & Chang, 2012).

As perceived risk can be seen as a combination of ambiguity and negative consequences, it was expected to negatively influence the purchase intention of hybrid vehicle. Buyers would like to maximize their purchase utility and minimize the perceived risk. In another word, customers are reluctant to purchase a product if they think that they might need to bear a high risk (Mitchell, 1999).

Hence, with previous research supported that perceived risk negatively affects purchase intention, the first hypothesis formed as below: